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AGRICULTURE

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7 June 1982

CHINA REPORT

AGRICULTURE

No. 208

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NATIONAL

I. GENERAL INFORMATION

BRIEFS

NORTH CHINA RAINFALL--Beijing, 13 May (XINHUA)--Northern China's winter wheat growing areas experienced rainfall from 10 to 13 May. Precipitation ranging from 10 to 40 millimeters was recorded in drought-stricken Shanxi, Hebei, Henan, western Shandong, northern Jiangsu and Anhui and in the southern part of Central Nei Monggol. Precipitation of more than 40 millimeters was recorded in Xing and Yuanping counties in Shanxi, Shenxian County in Shandong, and Xiaxian and Luanchuan counties in Henan. According to the Central Meteorological Station, the rainfall has alleviated the dry spell in the aforementioned areas and benefited winter wheat and spring crops. Rainfall in southern Shandong, southern Shanxi and southern Liaoning was generally less than 10 millimeters. [Text] [Beijing XINHUA Domestic Service in Chinese 0729 GMT 13 May 82 OW]

CSO: 4007/416

GANSU

BRIEFS

MINQIN COUNTY HOGS--Lanzhou, 16 May (XINHUA)--Over the past 3 years Minqin County, Gansu, has increased the number of hogs in stock by more than 10,000 head a year. Last year the county raised over 130,000 hogs, an alltime high. [OW141131 Beijing XINHUA Domestic Service in Chinese 0052 GMT 10 May 82 OW]

COLD WEATHER FORECAST--A cold air mass has moved into the Hexi corridor, Gansu Province, from North Siberia in the Soviet Union. It is forecast that the weather in Gansu Province will become cloudy 11 and 12 May. Most areas will have light or medium rainfall and snowfall. Gannan Tibetan Autonomous Prefecture will have a heavy snowstorm. The temperatures in the North Dingxi Prefecture and in the east part of the province will drop 8 to 11 degrees. Those in other areas will drop 6 to 8 degrees. After the cold rainy days, the Hexi mountainous areas will be hit by severe frost on the mornings of 12 and 13 May. The east part of the province and the North Dingxi Prefecture will be stricken by frost on the mornings of 13 and 14 May. Except for southern areas of the province, other areas throughout the province will be affected by frost. [SK120919 Lanzhou Gansu Provincial Service in Mandarin 1125 GMT 11 May 82 SK]

CSO: 4007/416

GUANGDONG

METHODS TO SMOOTH FLUCTUATIONS IN LATE CROPS NOTED

Guangzhou NANFANG RIBAO in Chinese 17 Mar 82 p 2

[Article: "How Can Great Fluctuations in the Late Crop Be Changed? Some Agricultural Specialists in the Province Have Made a Scientific Analysis of Reasons for Decreased Yields in the Late Crop During Any Given Year, and Feel that the Guiding Mentality Should Be to Establish Consistency and Then Work from Consistency for Increases"]

[Text] Editor's Note: People may possibly ask, since now is the time for doing a good job of spring farming, why in the world should anyone seek out agricultural specialists and persons in charge in agricultural units to concentrate on the study of problems in late crop production? People who truly understand agriculture will realize that only through early study of this important problem can locking the barn after the horse has been stolen be avoided; only in this way can there be no missing out on the farming season, and only in this way can one talk of fighting a battle for which one is prepared. In another two months, it will be time to sow the late crop, and if specialists are asked then, it will be too late to do anything with their advice.

Large fluctuations in late crop yields are a repetitious phenomenon in Guangdong Province's grain production. How to carry forward the achievements of "large upswings" in the late crop, and especially how to avoid a passive situation of "large downturns" is a crucial issue for late crop production. An historical analysis of this issue by agricultural specialists has provided some views that accord with science rather well, and this is a contribution to development of the province's agriculture. While they are doing a good job of spring farming, this will greatly help every jurisdiction do a good job of late crop production with more initiative and more foresight than in former years.

While doing a good job of current spring farming and production, how can preparatory work for the late crop be done early in order to change a situation of "large ups and downs" in late crop production? Recently the Provincial CCP Committee

assembled in Guangzhou a group of agricultural specialists, scientific and technical personnel, and persons in charge of agriculture in each of the province's prefectures to discuss this problem. The chairman of the Standing Committee of the Provincial CCP Committee and concurrent director of the Provincial Agricultural Committee, Du Ruizhi [2629 3843 5347], gave a speech at the meeting. After seven days of repeated explorations, comrades attending the meeting came to the conclusion that the guiding mentality for late crop production should be "to establish consistency and then work from consistency for increases." Specific measures would require "accentuating advantages and avoiding disadvantages, with a combination of avoidance and resistance."

Since entering the 1970's, late crop production in Guangdong Province has been very inconsistent. During the period from 1970 to 1981, 7 of the 12 crops had reduced yields, the degree of decrease sometimes being very great. For example, in 1975 late crop output for the province as a whole totaled 14.4 billion jin, declining in 1976 to 12.9 billion jin, a drop in output of 1.5 billion jin. In 1977, total output from the late crop again rose to 16.38 billion jin only to fall again in 1978 to 13.79 billion jin, a drop of 2.5 billion jin. A comparison of 1981 with 1980 also showed a drop of about 2 billion jin.

Formerly, in analyzing reasons for reduced output from the late crop, quite a few comrades took into consideration only abnormal changes in the weather. At this meeting, many comrades acknowledged that weather abnormalities had a very great influence on late crop output; however, if work is done well in every aspect, small disasters can be made to result in no decrease in output, and large disasters can be made to result in only small reductions in output. Comrades from Zhaoqing Prefecture made a concrete analysis of a drop in output totaling 1.16 billion jin in the years 1976, 1978, 1979 and 1981 in a search for contributory factors of many different kinds. First was an estimated loss of about 480 million jin of output attributable to unfavorable weather about which little could be done. This amounted to 41.4 percent of the total drop in output. Second was damage resulting in a drop in output caused by insufficient coordination of technical measures, such as insufficiency of organic fertilizer, improper fertilization, and retrogression in seedling propagation techniques. This caused a drop of about 400 million jin or 34.5 percent of the total drop in output. Third was late sowing and late transplanting; weak seedlings with poor resistance, small heads of grain with a small number of grains per head, producing a drop in yields. In 1981 when the late crop was transplanted latest, the drop in output amounted to about 280 million jin, or 24.1 percent of the total drop in output. Plant protection specialist Wu Shangzhong [0124 1424 1813] noted that natural conditions for the late crop were fairly severe in 1981, and that in addition to damage caused by typhoons, flooding and cold, damage from diseases and insect pests was also conspicuous. Statistics show an area of more than 100 million mu (times) in the province stricken with rice diseases and insect pests, and losses to paddy resulting from blast, bacterial blight and sheath and culm blight are estimated to have amounted to 650 million jin. From this it may be seen that drops in late crop output cannot be attributed entirely to natural disasters, and that one cannot regard only wind and water as disasters.

After the specialists had made a comprehensive analysis of reasons for drops in the late crop, they made a point of saying that a good job of late crop production required a guiding mentality of "establishing consistency and then working from consistency for increases." The major contradiction in late crop production at the present time is lack of consistency, and this is particularly the case in central grain producing regions. The central region grows about 20 million mu of paddy rice, and if output there could be made consistent, it would be possible to build from consistency toward high output. The area plays a decisive role in winning a bumper grain harvest for the province as a whole. On the basis of weather conditions, the specialists set the safe heading periods for late crop paddy rice, dividing the entire province into three zones as follows: the North Guangdong Mountain Zone, being the northern mountain zone from the mouth of the Lian Jiang in Yingde west to Guangning, and Huaiji, and east to Fogang, Xinfeng, Heping and Xingmei, where the "cold dew wind" arrives early and where opportunities are small for a rise in temperatures for the late crop thereafter. Here mostly "avoidance" methods should be used, meaning that heading of the late rice crop should take place before the arrival of the "cold dew wind." The Qiong-Lei Zone, including the Leizhou Peninsula and Hainan Island, where the main danger is from typhoons and torrential rains, waterlogging and water stagnation, requiring "resistance" as the main method to be used in a combination of "resistance" and "avoidance." Varieties with strong resistance should be selected. The central zone, including Shantou, Huiyang, Foshan, Zhaoqing, Meixian and a part of Guangzhou, which is affected by both typhoons and torrential rains and the cold dew wind, as well as low temperature cold damage. Measures required are "avoidance" principally in a combination of "avoidance" and "resistance." This means that arrangements should be made so that the heading period for rice comes around 10 October, and so that the period of full heading of sitting autumn varieties is before 1 October. In addition, varieties with strong resistance should be selected, and scientific farming and management should be intensified.

In order to achieve the goals of "avoidance" and "resistance," comrades attending the meeting believed that it is necessary, first of all, to achieve an equitable crop pattern for various varieties, i.e., a suitable matching of early, intermediate and late ripening varieties with no growing of a single variety over a wide area, and particularly avoiding the growing of a late ripening variety over a wide area. Otherwise, avoidance of disastrous weather would be difficult. Next, everything has to be done in its proper order to achieve properly early sowing and transplanting. Third, healthy body growing methods must be used, propagating sturdy seedlings and fertilizing adequately with base fertilizer to lay a good foundation for increasing seedling resistance.

In order to implement measures for consistently high yields from the late crop, the Provincial Agricultural Committee required all prefectures to act in accordance with new circumstances in rural villages to strengthen leadership of agricultural production, to improve methods for serving agriculture, and to restructure agriculture technical service organizations for genuine achievement of reliance on policies and science to win bumper harvests from the late crop.

GUANGDONG

BRIEFS

SUGAR FARMING TECHNOLOGY--Work has begun in China's Guangdong Province on a 500-hectare project to introduce Australian sugar farming technology to China. The project, resulting from cooperation between Australian trade officials and private consultants, is regarded by the Chinese Government as an important step toward mechanization and efficiency in China's growing sugar industry. Radio Australia's Beijing correspondent Richard Thwaites says it is worth close to a million dollars in form of equipment by Australian companies. Last year, China bought around 100,000 tons of sugar from Australia. [Text] [Melbourne Overseas Service in English 1230 GMT 3 Apr 82]

CSO: 4020/130

BRIEFS

AUSTRALIAN EXPERTS SERVICES---A team of Australian experts is leaving for southeast China next month to act as long-term advisers on a forestry project. The project, near Nanning in the Guangxi Zhuang Autonomous region, aims to provide training in low-cost methods of increasing forestry production. It is one of two projects that have already begun under the technical cooperation for development agreement signed last October by China and Australia. The other project underway is in Beijing where seven Australian advisers are helping to improve teaching methods in the English language at a foreign language institute. The long-term aim of this project is to enhance the English language skills of Chinese technical personnel who have to study abroad in English. So far, China has requested Australian assistance in about 40 projects under the technical cooperation agreement. Most of the projects would be in agriculture, such as soil conservation, pesticide control and beef and dairy production, but feasibility studies are being undertaken on a wide range of other projects, including some in the health field, in civil aviation, in petroleum exploration and in (?auditing). [Text] [BK081205 Melbourne Overseas Service in English 0830 GMT 4 Apr 82]

CSO: 4020/130

POLICIES ON COMMUNE-BRIGADE RUN ENTERPRISES ANALYZED

Shijiazhuang HEBEI RIBAO in Chinese 24 Mar 82 p 2

[Article by Political Study Department, Provincial Commune and Brigade Enterprises Bureau: "Questions and Answers About Several Commune and Brigade Enterprise Policies"]

[Text] Question: What is the present program for development of commune and brigade enterprises?

Answer: Commune and brigade enterprises must adhere to a socialist orientation, actively produce products needed by society, principally serve agricultural production and the people's livelihood, but also serve large industry and exports. Development of commune and brigade enterprises requires adaptation of general methods to local situations in accordance with availability of local resources and social needs. There should be no attempts to "make bricks without straw," no operation of processing industries with excess production capacity, no competition for raw materials and power with large industrial enterprises, and no destruction of national resources. They may also actively experimentally operate integrated agricultural, industrial, and commercial enterprises.

Question: What is the scope of commune and brigade enterprise operations?

Answer: The scope is very broad and the variety of matters numerous. A few major ones are provided here for reference. There is farming and breeding of aquatic products; agricultural products processing industries; industries making things for use in agriculture such as manufacture of small farm machines and implements and the repair and renovation of farm machines; fuel, and processed and raw materials industries and power industries, the operation of hydroelectric power stations and pit head thermal power stations below 12,000 kilowatts being permitted. They are allowed to undertake, on behalf of large industries, production of diffuse spare parts and of some products. Depending on needs and capabilities, they organize construction teams, and transportation, loading and unloading teams to undertake city and countryside capital construction, hauling, loading and unloading tasks. Where resources and skills permit, they may produce traditional handicrafts and export items. If local requirements exist, they may operate businesses or service trades such as tailoring, repairs, lodging houses, food supply, or trade warehouses.

Question: What consideration does the country show commune and brigade enterprises in tax collection matters today?

Answer: In order to foster development of commune and brigade enterprises, the state practices a policy of low taxes and exemption from taxes. Specific provisions are as follows: Products produced by commune and brigade enterprises for direct use in agriculture, as well as vocational earnings from items that commune and brigade enterprises make to serve the livelihood of their own commune members, may be carried on the books as specific items and services, and are thus exempt from collection of industrial and commercial taxes. Except for the production of items taxed at a high rate such as tobacco, spirits, sugar, cotton yarn, and wristwatches, on which industrial and commercial taxes are levied in accordance with regulations, income from the production of other goods and from vocations, as well as sugar produced by places in which processing capacity is inadequate and for which taxation in accordance with regulations would work hardships, are given reduction or exemption from industrial and commercial taxes for periods of less than a year. The point at which taxes begin to be levied on commune and brigade enterprises has been changed from the former 600 yuan of income for the entire year to 3,000 yuan, the tax rate being 20 percent. All earnings below the tax levy point are exempt from taxation. Except for enterprises that compete for raw materials with large advanced industrial enterprises and enjoy considerable profits, which are taxed as income according to regulations, depending on individual circumstances, other newly opened enterprises are given a 1 to 2 year exemption from taxes. (In cases where following the period of tax exemption payment of taxes would work hardship for specific enterprises, another year's exemption from taxes may be granted.) Profits derived from production of items that serve agriculture directly such as chemical fertilizers, pesticides, veterinary medicines, and the manufacture of farm machinery and implements, and profits that derive from enterprises that directly serve commune members' livelihoods such as beancurd workshops, flour mills, soy sauce workshops, processing of grain and cotton, barbershops and tailor shops may, if special consideration is genuinely needed, be listed as products and services and, following approval by the Provincial People's Government, may be exempted from income taxes. Commune and brigade enterprises in border region counties and national minority autonomous counties (or banners) shall continue to be exempt from payment of income taxes from 1979 until 1983. Disaster area communes and brigades engaged in production of relief items may receive special consideration for a fixed period of time for reduction or exemption of industrial and commercial taxes, and income taxes. Commune and brigade enterprises are to strictly carry out revenue collection policies, no cheating on taxes, evasion of taxes, or late payment of taxes due permitted.

Question: How should commune and brigade enterprise profits be distributed and used?

Answer: The welfare of the country, the collective and individuals must be taken into consideration. First, taxes must be paid and loans that are due repaid. Withholdings for the enterprise are to be assured in order to expand reproduction. Distributions of returns to brigades are to be assured to

raise commune members' standard of living. Depending on earnings from agriculture, industry, and sideline occupations, equitable arrangements should be made for capital construction investment and collective accumulations. On the basis of the foregoing principles, it is necessary to proceed from realities, to adapt general methods to specific places and specific enterprises, and through mass discussion to democratically determine the proportions to be withheld for enterprise expansion of reproduction, for payment to communes and production brigades as public accumulation funds and public welfare funds, and for distribution to production team commune members.

Use of enterprise profits remaining has to proceed from realities in the enterprise, democratic discussions being held to decide proportions for augmentation of circulating capital, use in increasing fixed assets, technological innovation, improvement of equipment, use for public welfare and for welfare services. Use of public welfare and public accumulation funds tendered to communes and production brigades also has to be decided by discussion of commune member representative assemblies, specific purposes being agreed upon. No individual leaders may arbitrarily approve use of commune and brigade enterprise profits; they may not squander or waste them; and they may not use them to invite people to dine or to provide gifts. Such unhealthy tendencies are to be resolutely corrected.

Question: What forms of responsibility systems should commune and brigade enterprises promote now?

Answer: Hebei Province's commune and brigade enterprises are spread out over a wide area, and their conditions vary. They should adapt general methods to local situations and to local enterprises in formulating production responsibility systems. The following several forms are fairly universal at the present time:

First is commune and brigade responsibility systems instituted in enterprises. Their main forms are as follows: Assumption of sole responsibility for profits. All that complete profit plans on time are provided equitable remuneration with no bonuses and no penalties. Overfulfillment of profit plans and unfulfillment of profit plans is proportionately rewarded or penalized. Distributions of profits is done on the basis of profits earned, a suitable proportional distribution being set, the more earned the greater the distribution; the less earned the smaller the distribution. Large-scale sole assumption of responsibility is practiced, the amount of profits to be paid to higher authority set and all profits in excess of that amount reverting to enterprises for their disposition, communes and brigades not being further involved.

Second is responsibility systems within enterprises for workshops, groups (or teams), and individuals. Their most common forms are: Overfulfillment of piece rate wages: Equitable calculation of production norms for each employee on the basis of different kinds of work done, a standard wage being paid for fulfillment of norms, additional wages to be paid in cash for overfulfillment of norms on the basis of quantity, quality, and consumption criteria. For

failure to fulfill norms, a docking of wages figured on the basis of conversion to monetary terms of shortfalls in product output. For both group and team accounting and assumption of sole responsibility for profits, the enterprise fixes on workshops, groups and teams the various output value, profit, and production expense criteria, and when they are overfulfilled, a certain amount of the overfulfilled portion is withheld for bonuses. The form of responsibility system of independent accounting, responsibility being placed on individuals, is the same as the method of assumption of sole responsibility in the figuring of profits. It is generally used for independent work such as for chauffeuring, electrical work, maintenance work, and service industries. Floating wages: One kind of floating wage provides payment of a basic wage plus a wage that fluctuates up and down depending on how well the enterprise produces. Another kind provides for no basic wage, but rather a certain proportion is withheld from gross profits as wages for workers, distributions made in accordance with task fulfillment by individual workers. In sole responsibility for profits, all overfulfillment goes to the person bearing the responsibility. The enterprise enters into a contract with individuals, which sets the amount of sums to be paid the collective, all excess to go to the individual, commune members being individually responsible. Unified management with dispersed processing and withholding of profits: In this method, the enterprise assigns uniform production tasks to commune members within the enterprise, and also provides them with the same raw materials, carries out uniform inspection of goods quality prior to acceptance, and conducts centralized marketing and final settlement of accounts. From profits derived, a proper management fee is withheld, the remainder going to commune members individually.

Question: What principal policy regulations should the state have for commune and brigade enterprises engaged in processing of agricultural products?

Answer: All farm products that lend themselves to rural processing in accordance with rational economic principles should gradually come to be processed by commune and brigade enterprises. The setting of equitable base procurement figures for agricultural products can be done through contracts, all in excess of these base figures to be disposed of by communes and brigades as they see fit. This will provide commune and brigade enterprises with a reliable source of raw material for processing while, at the same time, commune and brigade enterprises can do processing for the state.

Question: What regulations are there about integrated commune and brigade enterprises?

Answer: The organization of integrated enterprises must certainly proceed from development of production, maintain the principle of voluntary participation, combine the lower and upper levels, proceed from the easy to the difficult, gradually develop participation in integrated operations, and not be limited to individual trades or industries region, or system of ownership. However, one cannot arbitrarily change the subordinate relations in the system of ownership of all parties to the integration, nor the debtor or creditor relationships with banks. If changes are necessary approval of financial or banking units has to be obtained. Also necessary is equality and mutual

benefit with consideration of the economic benefits of all parties. Agreements or contracts should be signed that set the proportional sharing of economic results on the basis of what each party has provided including funds, raw materials, skills, workforces, worksites, equipment, and facilities. Diverse forms of integrated operations should be permitted with no rigid insistence on certain forms. So long as fulfillment of plan tasks handed down by the state are assured by the various forms of integrated enterprises, some of the products in overfulfillment of plan and products produced from raw materials that the enterprises have assembled themselves may be purchased by business or materials departments, and some may be disposed of as the enterprise sees fit in accordance with state policies, one enterprise supplying the needs of another.

Integration of raw materials producing areas and processing areas is to be promoted. Planned allocation quotas for raw and processed materials handed down by the state must be fulfilled first. Supply of raw materials for production to be used within integrated enterprises need not go through the intermediary links of business, supply and marketing, and materials, but direct allocation for supply may be practiced. Distribution of raw materials by the state is still done on the basis of the subordinate relationship between two parties, some being supplied directly, and some being organized for supply on site or nearby by commercial, supply and marketing, or materials departments. Commune and production brigade enterprises can also gradually try operating in conjunction with production teams and commune member households integratedly operated vicilian run enterprises, dividing up economic fruits. Wages and welfare benefits for all employees must be paid in accordance with original stipulations, and changes are not to be made lightly.

Once integration has taken place, unless discussion and agreement takes place about the original cooperative relationship among all parties, no one may take it upon himself to break it. So long as conditions of the cooperative agreement are carried out, relationships with other enterprises outside the integrated unit may be conducted. Enterprises within integrated bodies organized on the basis of specialized cooperation may not "eat out of a large common pot." They must practice independent accounting.

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CSO: 4007/368

BRIEFS

FISH FARMING--Heilongjiang Province plans to invest 6 million to help communes and brigades develop fish farming. [Words indistinct] farming in the province. By the end of 1981, there were 2,400 fish-farming units run by communes and brigades in 69 municipalities and counties. Water areas for fish-farming totaled 1.64 million mu. The province plans to expand water areas for fish-farming to 2.25 million mu this year. [SK060633 Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 4 May 82 SK]

AFFORESTATION PROJECTS--Heilongjiang Province overfulfilled its annual afforestation and sapling cultivation plan this spring. As of 11 May, the province had afforested 4 million mu of timber, fuel, economic and shelter forests, overfulfilling the plan by 14.3 percent, and cultivating 650,000 mu of saplings, overfulfilling the plan by 9 percent. Aside from this, 48 million trees and 17 million saplings had been planted and grown voluntarily by the people in the province. In the first year of the all-people afforestation campaign, as many as 9.6 million people have participated in afforestation activities--doubling last year's figure. [SK131220 Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 12 May 82 SK]

PADDY FIELDS--Following the expansion of paddy rice fields in the past 3 years, Heilongjiang Province expands again paddy rice fields by 380,000 mu this year, bringing total paddy rice acreage to 4.99 million mu. There are over 10,000 mu of paddy rice fields in each of Suihua, Qingan, Nehe, Tailai, Gannan, Mulan, Huachuan, Tangyuan, Mishan, Hailin and Jidong counties. [SK070522 Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 6 May 82 SK]

SOWING OPERATIONS--Bayan County, Heilongjiang Province, one of the marketable grain bases in the province, has made great progress in field crop sowing this spring. According to statistics, as of 7 May the county had sowed over 2.1 million mu of field crops and prefulfilled its field crop sowing plan by 4 days. The county's sowed acreage with improved varieties of grains this year accounts for 95.3 percent of the acreage of soybean and grains, surpassing the 1981 figure by about 20 percent. [SK120700 Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 10 May 82 SK]

STRONG GALES--A gale which was as strong as grade 12 with a speed of 34 meters per second hit Shuangyashan on 11 May. This was the strongest gale ever recorded in the city. This strong gale destroyed some houses and 200,000 square meters of plastic sheet coverings for spring vegetables. The Shuangyashan Municipal CCP Committee and government are taking actions to combat disasters and send relief to the disaster area. [SK120827 Harbin Heilongjiang Provincial Service in Mandarin 2200 GMT 11 May 82 SK]

WATER CONSERVANCY PROJECT--Subsidiary projects to harness (Anbanghe), (Yangyuanhe) and (Jielahonghe) rivers in Sanjiang plain, Heilongjiang Province, are under construction with state investment. Owing to narrow river courses and poor water-draining capacity, the 7.4 million mu of farmlands along these three rivers are often flooded. Though the main courses of these rivers were dredged a few years ago, water accumulating on farmlands cannot be drained due to the poor subsidiary irrigation systems. Construction of these subsidiary projects will be completed in 3 to 5 years. Over 5.5 million mu of farmlands will be aided. [Harbin Heilongjiang Provincial Service in Mandarin 1100 GMT 11 May 82 SK]

CSO: 4007/416

HUBEI

GOALS FOR BREEDING COTTON FOR JINGZHOU PREFECTURE DISCUSSED

Huanggang HUBEI NONGYE KEXUE [HUBEI AGRICULTURAL SCIENCES] in Chinese No 1, Jan 82
pp 9-11

[Article by Fu Hengqian [0265 1854 6197] of the Jingzhou Prefecture Agricultural Zoning Office: "Several Viewpoints on the Cotton Breeding Goals in the Jiangnan Plain"]

[Text] The Jiangnan Plain is one of our nation's major cotton producing regions. The natural conditions are superior. Take Jiangling County as an example; the frostless period is as long as 270 days. The first day of frost for an 80 percent guaranteed rate of yield is 16 November. The last day of frost is 21 March. This provides a great productive potential for cotton which has an unlimited growth characteristic. To develop the superiority of the climate, and to develop the advantages and avoid the shortcomings, we should plant crop varieties that can fully utilize the effective light and heat resources of the locality and those varieties that have a strong adaptability to the unfavorable factors, so that the predetermined goal of "spending less money to realize large gains" can be realized. Some views on the cotton breeding goals for the Jiangnan Plain are proposed here for discussion.

1. Reserve Strength of Intermediate Maturing Varieties

The cotton breeding goals for the Jiangnan Plain generally emphasize early maturity and a clustered plant type suitable for dense planting and for the development of agricultural mechanization. It has always been believed that the Delta Pine cotton No 15 has a slightly late maturation time, therefore a lot of effort has been directed toward early maturity, while the selective breeding of intermediate maturing cotton varieties with reserve strength has been neglected. According to meteorological statistics of 27 years from 1954 to 1980 compiled at the Jingzhou Prefecture Meteorological Station (Jiangling), the average temperature of each 10-day period in September is always above 20°C. This is very beneficial to the growth and development of cotton fibers. The average temperatures of each 10-day period in October are all above 15°C. This is higher than the lowest temperature of 15°C required for the growth and development of fibers. Although this is not sufficiently ideal, it is enough for the fibers to develop fully. The average number of rainy days in September is 8.7. The amount of rainfall is 85.3 millimeters. The average number of rainy days in October is 9.3. The amount of rainfall is 76.4 millimeters.

This means, the weather in September and October consists mainly of sunny days. The temperature is high, sunlight is sufficient, and there is some rainfall. These are favorable to the formation and thickening of cotton fibers. Therefore, under the prerequisite of striving for more summer bolls, the Jiangnan Plain has a superior climatic condition to produce several more effective autumn bolls. Cotton breeders should not neglect this climatic condition when selectively breeding new cotton varieties.

The flowering and budding periods of cotton in the Jiangnan Plain frequently encounter plum rains. The boll forming period frequently encounters torrential rains, drought, waterlogging and attacks by diseases and insect pests. In addition, the measures of cultivation are sometimes inappropriate, which frequently causes massive shedding of cotton buds and bolls during the early period. If the reserve strength of a cotton variety is poor, its unlimited growth potential will be limited, and there will not be much hope for producing several more autumn bolls and the yield will not increase.

In the past, some people believed that cotton varieties with a strong reserve strength matured late. This insinuates a derogatory meaning, and is not appropriate. The concept that intermediate maturing varieties mature late should be corrected to the belief that intermediate maturing varieties have a strong reserve strength.

Planting intermediate maturing cotton varieties with a strong reserve strength should also be combined with corresponding techniques of cultivation. A strong reserve strength does not mean to let cotton grow blindly without limit. It must be combined with appropriate trimming, topping, removing the terminals of the branches to control horizontal growth and to control the growth of ineffective cotton bolls. The cotton plants of ordinary varieties with a strong reserve strength are relatively tall. The row distance should be appropriately widened or the plants should be planted in alternating wide and narrow rows. The method of fertilization should also be based on stimulating early development and steady growth to form more summer bolls so that the superiority of producing more autumn bolls can be fully developed.

2. Strong Resistance to Adversity

(1) During the seedling period, cotton can resist a lot of rain and low temperatures: The pattern of the need for water throughout the growth period of cotton is that it requires less water during the seedling period, more water during the budding and flowering periods and less water during the boll opening period. The physiological consumption of water during the seedling period (the first 10 days of May to the first 10 days of June) is about 50 millimeters, constituting about 15 percent of the whole growth period. According to meteorological data from 1955 to 1979 at Tianmen County, the amount of rainfall from the first 10 days of May to the first 10 days of June is 213.9 millimeters, four times the physiological need for water. The greatest amount of rainfall was in 1970, which amounted to 8.5 times, and the least amount of rainfall was in 1965, which amounted to 2.03 times. Also according to statistics of the Jingzhou Prefecture Meteorological Station (average from 1954 to 1980), the amount of rainfall during the same period was 193.9 millimeters, slightly less than that in Tianmen County. The average number of rainy days reached

17.9. The largest number of days reached 26 in 1973. Rainfall is not only plentiful during the seedling period, it is frequently accompanied by a cold front and low temperatures, thus weak seedlings, diseased seedlings, stiff seedlings and dead seedlings often occur seriously. To reduce the degree of damage by an abundance of rain and low temperatures, the most economical and effective method is to selectively breed varieties with a strong resistance to adversity. The Delta Pine No 15 and Eguang cotton varieties planted for a long period in the Jiangnan Plain come from the southern part of the United States around 32°N latitude and cotton planting regions below 150 meters above sea level. This region is similar to the Jiangnan Plain which is at about 31°N latitude and below 100 meters above sea level. The growth period of cotton is relatively close. But the southern cotton planting region of the United States is near the Gulf of Mexico. It does not have the unfavorable weather of low temperatures, an abundance of rain and frequent cold fronts during the seedling period as does the Jiangnan Plain. Therefore, the varieties selectively bred do not need to have a strong resistance to adversity during the seedling period. Therefore, the cotton varieties introduced from this region in the United States are not suitable for direct utilization in the Jiangnan Plain. They should be modified so that they can gradually adapt to the climatic conditions of more rain and low temperatures during the seedling period. Varieties with a weak growth trend during the seedling period and with poor uniformity should be included as the major items for selective breeding.

(2) Tolerance to drought and waterlogging during the flowering and boll forming periods: In July and August, summer drought occurs frequently in the Jiangnan Plain. At the same time, each year, drainage is poor because of torrential rains. Parts of the cotton fields are frequently affected by waterlogging. If varieties with a strong growth trend during the flowering and boll forming periods are planted, several more autumn bolls can be produced, and within a definite limit, this can reduce relative loss. The Jiangnan Plain is situated in the alluvial plain along the two banks of the Changjiang and Hanshui rivers. Although there are sufficient water sources for irrigation, limited irrigation facilities must first guarantee the need for water for the more than several million mu of paddy rice. Also, most of the cotton fields as yet are still level over large areas but uneven in small areas, and the effectiveness of irrigation is poor. In addition, in Jingzhou Prefecture alone, there are 1.21 million mu of cotton fields which do not have sources of water. This requires that the cotton varieties have a stronger tolerance to drought and waterlogging.

3. Larger Total Number of Bolls per Mu

The yield of cotton consists of the number of bolls per mu, the weight of the bolls and the gin turnout. The abundance of the number of bolls is the foundation for high yields. In the Jiangnan Plain, summer bolls are the basic factor that constitutes the yield of cotton. Therefore, striving for more summer bolls is the main direction to guarantee stable yields. But striving to produce several more autumn bolls on this basis is where the important potential for continually increasing the unit yield is, and this must not be overlooked.

4. Weight of the Boll Should Be Above 5 Grams

Viewing the breeding of cotton of the world's major cotton planting nations, we see that they all emphasize the selective breeding of large bolls. The Soviet Union is popularizing the Tashkeng No 1, 2, 3 varieties. These are crossed and bred from the large boll variety C-4727 as the main parents. The bolls of Tamcot and such varieties introduced into our nation in 1972 from the United States all have an average weight of over 5 grams. The weight of the boll of Lumian No 1, which has served importantly in cotton production in Shandong Province, is also over 5 grams. The weight of the boll of the Eguang cotton planted massively in our province averages only 4.32 grams in the 1978 and 1979 province-wide regional tests. Therefore, its yield cannot be easily increased. As we establish the goals of breeding, we should include the requirement that the weight of the boll should not be less than 5 grams as an important content. When making selections in the fields, we must grasp this requirement tightly.

5. A Gin Turnout of About 40 Percent

The ability of Delta Pine No 15 to be planted in China's Changjiang river valley and even widely in the Huanghe river valley for a time is inseparable from the characteristic of a high gin turnout of this variety. Our province introduced a massive amount of Eguang cotton in 1964 to replace the Delta Pine cotton No 15 because it had become impure and degenerated. At the time, increased yields were realized mainly because of the high gin turnout. When establishing the goal of breeding, the gin turnout should not be lower than the level of the original variety of Eguang cotton.

6. The Length of the Fiber Should Not Be Shorter than 29 Millimeters

The National Cotton Science and Research Conference held in 1978 established the criterion that the length of the fiber of cotton bred inland should not be less than 29 millimeters in main body length. This is suitable for the Jiangnan Plain and it should be managed well. When making selections in the field, the length of the fiber should not be relaxed one bit.

In general, the goal of cotton breeding in the Jiangnan Plain is to fully utilize the long growth period and the clear climate of the locality. Also, the goal should be to breed varieties which have a relatively strong adaptability to the abundance of rain and low temperatures during the seedling period, summer drought and high temperatures or waterlogging, and varieties that can produce several more good quality autumn bolls on the basis of early development and steady growth, thereby producing many summer bolls, so that the goal of truly producing more bolls, large bolls, a high gin turnout, long fibers and good quality fibers and high and stable yields can be realized. Only such new cotton varieties can make greater contributions to cotton production in the Jiangnan Plain.

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HUBEI

CROP DISTRIBUTION IN YUNYANG PREFECTURE REVIEWED

Huanggang HUBEI NONGYE KEXUE [HUBEI AGRICULTURAL SCIENCES] in Chinese No 1, Jan 82
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[Article by Yi Fadong [2496 4099 2767] of the Yunyang Prefecture Agriculture Bureau: "Opinions on the Crop Distribution in Yunyang Prefecture"]

[Text] Yunyang Prefecture is located in the northwestern mountain regions of Hubei. The topography is complex. There are many types of agricultural crops. Food grain production is mainly wheat, corn and sweet potato. Geographic conditions vary. The climates in the north and south are different, and vertical climatic changes in the mountain areas are great. Agricultural production is limited by the climate and is very unstable. How can we suit measures to local circumstances in crop distribution and planting systems to combine using and nurturing the land, fully develop the superiority of stable yielding crops and achieve the goal of promoting benefits, avoiding damages, developing advantages and avoiding shortcomings? Several opinions concerning this question are presented here.

I. The Natural Conditions of the Yunyang Mountain Area and Agricultural Production

Only by correctly understanding the characteristics of the conditions of the soil, climate and water conservancy of the mountain region can we correctly guide agricultural production. Here, we will only talk about some of the relationships between the characteristics of natural conditions in our region and the planting of crops.

1. The mountains are broad but the land is narrow. The land is arid. There are many slopes. The land is infertile.

The whole region has a total area of 38.63 million mu of land, but there are only 3.68 million mu of arable land, a per capita of 1.4 mu. Of the arable land, 620,000 mu are paddy fields, constituting 16.8 percent. Dryland amounts to 3.06 million mu, constituting 83.2 percent, and 74.8 percent of this is slopeland. Most of the slopeland is precipitous and infertile. Agricultural production is widespread but harvests are poor. For example, in Zhushan County, the area of slopeland with a gradient larger than 30 degrees reaches 460,000 mu, constituting over half the area of cultivated land. The area of cultivated land with a soil layer less than 60 centimeters thick constitutes 35 percent. At the same time, the organic content of the soil is low. Nearly 600,000 mu of cultivated land has an

alkaline dissolved nitrogen content below 100 ppm and 500,000 mu of cultivated land have a content below 10 ppm. Such serious lack of nitrogen, lack of phosphorus and infertility of the plowing layer is representative of the whole region.

2. Light and heat resources are relatively good and they are favorable to developing multiple cropping systems.

The number of hours of sunshine throughout the year in the Jiangnan river valley is near 2,000 hours. It is 1,500 to 1,700 hours on Ergaoshan at 500 to 900 meters above sea level, 500 hours more than that in southwestern Hubei. The total amount of annual radiation is 107 to 111 kilocalories/square centimeter, more than that in southwestern Hubei and the Three Gorges of Changjiang by 11 percent and 6 percent respectively. The average daily amount of heat throughout the region from April to October is 250 to 450 calories, 73 calories more than that in Hangzhou. The active cumulative temperature $\geq 10^{\circ}\text{C}$ is 4,500 to 5,200 $^{\circ}\text{C}$, 50 to 120 $^{\circ}\text{C}$ more than that in Xinyang and Bangfu on the same latitude. The number of days over the years with an average temperature $\geq 12^{\circ}\text{C}$ is 196 to 214 days, and the number of days over the years with an average temperature $\geq 20^{\circ}\text{C}$ is 104 to 123. The beginning day with a temperature $\geq 10^{\circ}\text{C}$ in Yun County north of the Jiangnan (Plain) averages to be 25 March, the same as that in the Jiangnan Plain. The rich amount of heat resources has provided conditions for developing double and triple cropping. In 1980, double cropping areas of paddy fields throughout the region have already expanded to 397,000 mu, and the area of triple cropping in dryland has expanded to 730,000 mu.

3. Agricultural production is visibly affected by the vertical climates. Distribution of agricultural crops is diversified.

Taking the Jiangnan Plain as the border, the annual average temperature in Yun County, Yunxi and Jun County (abbreviated as the three northern counties) is 15.4 to 16 $^{\circ}\text{C}$. The annual average temperature in Zhushan, Zhuxi and Fang County (abbreviated as the three southern counties) is 14.3 to 15.6 $^{\circ}\text{C}$. The frostless period in the three northern counties is 15 to 30 days longer than that of the three southern counties. The amount of rainfall in the three southern counties is 130 to 190 millimeters more than that in the three northern counties. The vertical climates in the mountain region visibly affect agriculture. The elevation of the valley of the Changjiang and Hanshui rivers is less than 100 meters above sea level. The "first peak in Central China" has an elevation of 3,052 meters above sea level. Each increase of 100 meters in elevation above sea level is marked by an average drop of approximately 0.55 $^{\circ}\text{C}$ in temperature. The cumulative temperature $\geq 10^{\circ}\text{C}$ lessens by 150 to 190 $^{\circ}\text{C}$. The frostless period shortens by 7 to 9 days. The growth period of crops is delayed by 4 to 5 days. The amount of rainfall increases by 35 centimeters in the low mountain areas and by 53 centimeters in the high mountain areas. The vertical change in climate has formed three-dimensional ecological types, such as wheat at low elevations and potatoes at high elevations, potatoes in the south and yams in the north and mandarin oranges in the north and lacquer [trees] in the south.

4. The distribution of rainfall is uneven. There are many disasters. The degree of stable agricultural yields is not high.

The mountains are large and the valleys are narrow in our region. Water conservancy resources are rich. The whole region has a hydroelectric reserve of 500,000 kilowatts. The present water conservancy facilities number over 37,000 locations. They store, draw and lift an effective amount of 450 million square meters of water. But the small hydraulic stations do not have complete facilities. The effectively irrigated area is only 550,000 mu. Of the 3.06 million mu of dryland, the irrigated area is less than 60,000 mu. Annual amount of rainfall is 800 to 1,150 millimeters. Distribution is very uneven. There is more rainfall in the three southern counties and less in the three northern counties, and more in the high mountains and less in the low-lying mountains. Summer rainfall constitutes 41 to 46 percent of the amount of the whole year. Most of this rainfall comes down as torrential rains and they frequently cause mountain floods. At the same time, there is more autumn rain than spring rain. Winter rainfall constitutes only 4 to 6 percent of the annual amount of rainfall. Therefore, drought, waterlogging, low temperatures, ice and hail, and mountain floods occur almost every year. Summer and autumn drought have an especially high probability of occurrence, and they severely damage agricultural production. For summer and autumn crops, summer harvested crops suffer fewer disasters and produce stable yields. Autumn harvested crops suffer more disasters and produce unstable yields.

II. Fully Develop the Superiority of Stable Yielding Crops, Guarantee the Steady Increase in Food Grains and Economic Crops

Never slacken food grain production and actively develop diversification are the correct policies for developing agricultural production. Specifically in the mountain regions of Yunyang, success was achieved by self-sufficiency, having a surplus of food grains and developing diversification in a big way. In recent years, especially since the 3rd Plenary Session of the 11th Party Central Committee, agricultural production of the whole region has broken away from the lingering situation which lasted for 10 years. Development was relatively fast. During the 5 years from 1976 to 1980, production of food grains increased for 4 years consecutively. By 1979, the region basically realized self-sufficiency. This has served greatly in stabilizing the economic trend in farm villages and in developing diversification centered around forestry and the production of handicraft products. But, because of natural disasters and the weak ability to fight disasters, food grain production was very unstable. Practice showed that although the conditions for developing diversification in the mountain regions were good, if food grains were insufficient, diversification and economic crops could not be developed well. At the same time, land resources cannot be increased. Destroying forests to reclaim and expand the planting area for food grains will cause the destruction of forest resources and soil erosion will worsen. The only practical and correct way is to adapt to the climatic patterns, fully develop the superiority of stable yielding crops to increase yields, improve the multiple planting index, and improve unit yield under the prerequisite of stabilizing the area of planting.

1. Fully Develop the Superiority of Summer Grains

Winter in the Yunyang Prefecture is relatively warm. Rain and snow in ordinary years amount to less than 50 millimeters. The amount of rainfall during the growth period of wheat is generally 330 to 360 millimeters, suitable for the needs to cultivate high yielding wheat. For example, from the first 10 days of October to the last 10 days of December, the cumulative temperature above 0°C is 987°C in Yun County and 834°C in Fang County. The final day with an average daily temperature of 3°C is 20 December in Yun County and 10 December in Fang County. Wheat sown during the middle and last 10 days in October has an effective tillering period of over 50 days in the three northern counties and 40 to 50 days in the three southern counties. The peak tillering period of November has an average temperature of 10.5°C in Yun County and 8.9°C in Fang County. The amounts of rainfall in the two counties are 39.7 millimeters and 36.4 millimeters respectively. Therefore, the temperatures and rainfall are very favorable to tillering of wheat. The beginning day when the temperature steadily passes 20°C is 19 May in Yun County and 29 May in Fang County. High temperature forced heating during the filling and maturation periods occurs very infrequently in ordinary years. During the latter period of wheat growth, although the amount of rainfall during the two months of April and May is more abundant in Fang County (173.8 millimeters), waterlogging may occur in paddy fields and flatland, but seldom occurs in wheat fields on slopeland. As long as the "three ditches" are dug well in flatland, waterlogging can be reduced or avoided. Therefore, summer wheat not only produces a stable yield, but managing cultivation well can also produce over 400 min per mu in yield.

Summer food grains occupy a very important position in our region's food grain production. During the 31 years from 1949 to 1980, there were 17 years in which summer increases brought about an increase throughout the year, and there were 8 years in which a summer reduction in yield brought about a reduction in yield throughout the year. There will be a stable and reliable foundation only if we can use summer yields to stimulate autumn yields and to produce a bumper harvest for the whole year. In recent years, the proportion of summer food grains throughout the region has continued to increase. The proportion of summer food grains now basically constitutes one-third that of the whole year. The proportion of summer food grains at some communes and brigades with larger areas of cultivated land has already reached 40 to 50 percent. For the whole region, the proportion of summer food grains can still be appropriately increased to 35 to 40 percent. Among the summer food grains, planting of wheat should be mainly expanded. The yields of broad beans and peas are not high and not stable because of the effects of overcast and rain and low temperatures during the flowering periods. Their planting areas have lessened from 400,000 mu to 270,000 or 280,000 mu. But the crop opening of broad beans and peas is early and good. The people also need such early and good crop openings in daily living, therefore their planting areas should not be reduced further. The summer food grain crop that should be developed in the high mountain region is mainly potatoes. Cold high altitude mountain regions over 1,000 meters above sea level are appropriate for developing early maturing wheat.

2. Fully Develop the Superiority of Spring Sown Corn

The yield of corn in Yunyang Prefecture constitutes about one-third the total annual yield of food grains. It occupies the same important position as wheat. But, in continuous cropping of wheat and corn and destroying the crop opening for sowing, the advancement of staminate and dispersion of pollen of corn meet the drought (bottleneck drought) at the end of July and the beginning of August. A slight drought reduces yield and a severe drought can eliminate the entire harvest. The yield is very unstable. To improve the degree of stability of the yield of corn, continuous cropping and destroying the crop opening must be changed to companion planting of wheat and corn. Corn should be sown in the spring. This will develop the potential of the climatic resources to increase yield and will also stimulate the advantages and prevent damages. The intermediate and late maturing corn varieties Yundan No 1, Zhongdan No 2 currently being propagated in our prefecture require about 75 days from sowing to staminate advancement. If corn is sown at the beginning of April in the low mountain regions and during the first 10 days of April in the Ergaoshan area, the period of staminate advancement will fall within the rainy period, and this can effectively prevent "bottleneck drought." But sowing cannot be completed within 3 to 5 days in large area production. Therefore, sowing should begin about 20 March in the low mountain areas and around 5 April in the Ergaoshan area. The end of sowing in the high mountain areas should not be later than 20 April.

3. Fully Develop the Superiority of the Sweet Potato, A Disaster-resistant Crop

In recent years, the planting area of sweet potatoes throughout the prefecture has been about 750,000 mu. The yield constitutes about 15 percent of the total yield of food grains. The amount of rainfall in the three northern counties is less. Drought is outstanding. Eighty percent of the area of sweet potato plantations of the whole prefecture is concentrated here. But, as interplanting and companion planting develop and as the crop distribution changes, the planting area of sweet potatoes during the past 2 years has decreased. Viewing the whole prefecture, relative stability of the planting area of sweet potatoes should be maintained in the future to improve unit yield. The potential of unit yield of the sweet potato is great. Transplanting sweet potatoes in spring and summer, even when spring drought and summer drought occur and affect vegetative growth, can still produce relatively ideal yields after autumn rain. Sweet potatoes must be rationally distributed in arranging the crop opening. In addition to leaving a portion of fallow land that needs to be plowed under in spring for planting sweet potatoes, continuous cropping of soybeans and sweet potatoes and companion planting of wheat and sweet potatoes can also be carried out.

4. Fully Develop the Superiority of Paddy Rice Which Is a Stable Yielding Crop

Except in the high mountain regions, our prefecture's paddy fields are mainly double cropping wheat and rice fields (during the past 2 years, some areas have developed double cropping of rape and rice). A number of brigades producing a per mu yield of 1,400 to 1,500 jin of double cropping sheat and rice have emerged. But because small water conservancy projects are not complete, in recent years the area of transplanting has lessened. Each year, only 520,000 to 550,000 mu have been

transplanted. Also because of the backwardness of the technology of cultivation, the quality of transplanted seedlings is poor. They do not develop early. And with the epidemic of rice leaf hoppers that has caused a disaster, production of paddy rice has developed slower than the production of dryland food grain crops. But for the people's livelihood and stable yields of crops, production of paddy rice should be greatly developed in the future. Localities with water sources should expand the area of paddy fields.

The development of double cropping of wheat and rice leaves a large area for the late crop. Late transplanting of ordinary rice will not easily produce high yields. Hybrid paddy rice must be actively propagated to raise the production of paddy rice to a new level.

5. Suit Measures to Local Circumstances to Develop Economic Crops

The per capita income of commune members in our prefecture is very low. In 1980, per capita income was 69 yuan. There are also 22.6 percent of the production teams which have a per capita income of less than 50 yuan. Less income for the commune members and insufficient capital for reproduction make it difficult to elevate scientific and technological standards. Therefore, while steadily developing food grains production, we must fully utilize the superiority of the mountain regions to develop timber and economic forests in a big way, and within the planting sector, we must develop economic crops actively and according to plan.

The distribution of economic crops must also be done by suiting measures to local circumstances. The humidity in the three southern counties is high. The temperatures are lower than those in the three northern counties. Bast fibers can be developed. Except for a small number of river valley regions where the microclimate is good, overemphasis on the development of cotton should not be done.

The mountain region has had a long period of shortage of edible oil. The production of oil bearing crops should be developed according to plan. The high mountain region also has a future for development. For example, the Longguang No 1 Brigade of Liudou Commune in Yunxi County planted 2.5 mu of cabbage-type rape in 1980. Seedlings were cultivated during the middle 10 days in July. They were transplanted during the first 10 days of September. Average per mu yield was 331 jin. The cultivated areas in the northern parts of Jun County and Yun County are larger. While developing summer food grains, we should actively expand the planting of sesame. To adjust the crop opening and increase the source of fertilizers in the double cropping region of wheat and rice, we should appropriately develop double cropping of rape and rice. Fifteen to 20 percent of the paddy fields can be arranged each year for planting rape. In addition, each locality can also utilize unused land between forests to plant peanuts. Localities with favorable conditions can develop the triple cropping system of wheat, corn and peanuts.

The crop opening of tobacco is good. The economic value of tobacco is high. The old producing regions in Jun County should actively revive the production of their famous dried tobacco. Yun County and Yunxi can suit measures to local circumstances

to develop Maryland tobacco and aromatic tobacco. Zhushan and Zhuxi can develop mao ba tobacco. Transportation is inconvenient in the mountain regions. Transporting coal for curing tobacco is difficult. In the future, flue cured tobacco should not be developed.

The humidity of the regions above Ergaoshan is high. Over the years, this region has a tradition of planting soybeans. During the 1970's, the yield of soybeans of the entire region once reached over 70 million jin. In recent years, because of the development of companion planting of wheat and corn and potato and corn, the area of pure soybean plantations has gradually lessened, and the yield is less than 40 million jin. In the future, in addition to actively developing the triple companion crops of wheat, corn and soybeans, some of the frontier infertile land where the yield of companion planted corn is not high should be changed to companion planting of wheat and soybeans.

III. Insist on Developing Interplanting of Mainly Companion Planted Wheat and Corn

Interplanting and companion planting of mainly companion planted wheat and corn have broken away from the limitations of the continuous cropping system and have opened a broad road for improving the multiple planting index. They suit the natural conditions of our prefecture, which has less rain and many disasters, drought in 9 out of every 10 years and several droughts in a year, and they suit the productive conditions of our prefecture which has more slopeland and less flatland, more dryland and fewer paddy fields, and a weak ability to resist disasters. Many years of practice show that the development of agriculture in the mountain regions and the steady increase in food grains can be realized by developing stable yielding spring and autumn sown crops to seek high yields in stable yields.

Since 1975, the whole prefecture has developed companion planting of wheat and corn and potatoes and corn. Preset rows for autumn sowing cover more than 1 million mu each year. This enables the sowing period of corn to begin generally 50 to 60 days earlier, while expanding the area of summer food grains continuously. The staminate advancing period correspondingly occurs earlier. The threat of summer drought in the low mountain regions has thus been greatly reduced, and the high mountain regions can avoid autumn cold. The area of summer food grains in 1979 throughout the prefecture showed an increase of 460,000 mu over that in 1975. The yield increased by 267.29 million jin. Net increase of corn was 230.94 million jin. The total yield of food grains of the whole year increased by 547 million jin, an increase of over 47 percent. Also, corn was companion planted. Because the side rows of wheat constitute 50 percent of the whole field, the preset rows form a ventilation and light permeation "corridor." The characteristics of the spikes of wheat improved. At 5.5 chi per strip, the preset row is 2.5 chi, the sowing width of wheat is 3 chi, and the per mu yield can reach over 600 jin.

Companion planting of wheat and corn is an important measure to guarantee that the crops are rationally distributed as described above. During a definite period in the future, we should insist on developing it and keeping it stable. Except for the regions where paddy fields are concentrated and where there are fewer people and more land, the areas of companion planting at most localities should be expanded. The method of companion planting should be rationally arranged according

to the texture of the soil and the distribution of the forecrop and the after-crop. At present, the preset rows are generally too narrow and are not up to standards. They require urgent improvement. Viewing the whole prefecture, the following methods are better:

(1) Six chi for each strip. The width of sowing wheat should be 3 chi sown in five to six rows. The preset rows are planted with two rows of corn with a small row of 1 chi. The distance between plants should be 8 cun, 2,500 plants per mu. This is suitable for use in plots with intermediate and low soil fertility.

(2) Eight chi per strip. The sowing width of wheat can be 4 chi shown in seven to eight rows. The preset rows can be three rows of corn with a distance of 8 cun between plants, 2,800 plants per mu. This is suitable for plots with intermediate soil fertility.

(3) Ten chi per strip. The sowing width of wheat can be 5 chi sown in seven to eight rows. The preset row can be 5 chi. Low earth mounds can be made to transplant two rows of sweet potatoes. One row of corn can be companion planted between rows. After harvesting wheat, the crop opening is destroyed to plant sesame. This is suitable for regions mainly planted with spring sweet potatoes.

(4) Companion planting of potatoes and corn can popularize the method of 5 chi per strip. Potatoes can be planted in narrow rows of 1 chi. The preset row can be companion planted with two rows of corn.

In addition, interplanting and companion planting can also be done for companion planting of food grains and green manure crops, such as presetting rows for companion planting of winter green manure at autumn sowing, companion planting of tamarix fiber after harvesting wheat and companion planting of tamarix fiber or mung beans after harvesting early corn, plowing green manure plants under as base manure for autumn sowing. These should be actively tested and popularized to combine use and nurturing of land. The double cropping regions of rice and wheat have fewer paddy fields and more laborers. To fully develop the function of increased yields of good fields and good soil, we can cut green plants as cumulative fertilizers, return stalks to the fields and establish year-round green manure bases on mountain slopes to nurture the land. Pure green manure should not be overly planted. Of course, it is necessary to appropriately change some of the double cropping wheat and rice fields to double cropping rape and rice fields. Rape is an oil-bearing crop and a fertilizer crop. At the same time, its crop opening is earlier than that of wheat, and it can benefit paddy rice production.

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CONTRACT SYSTEM FOR VEGETABLE PROCUREMENT PRAISED

Nanjing XINHUA RIBAO in Chinese 16 Feb 82 p 1

[Article by Yang Lixin [2799 4539 2450] and Wei Laihong [7279 0171 1347]: "Nantong Municipality Comprehensively Promotes Vegetable Production and Marketing Reward and Penalty Contract System. Adheres to Planned Growing to Assure Phased Market Arrival"]

[Text] Editor's Note: Vegetables are a commodity that everybody needs everyday, but vegetable production and supply are frequently difficult to control. As a result, production and marketing contradictions are fairly prominent. How can these contradictions be solved? Nantong Municipality's experiences have demonstrated that institution of a vegetable production and marketing reward and penalty contract system is an effective method.

The situation everywhere shows that if vegetable production and supply are to be improved, it will be necessary to strengthen planning and persevere in planned planting to assure balanced market arrival. This planning requires strict contracts as a guarantee. Without contracts, planning has no guarantees and may fail to deliver. To fulfill contracts is to carry out plans. In order to strengthen planning concepts and guarantee benefits to vegetable producers, dealers in vegetables, and the broad masses of consumers, we must intensify ideological training and, at the same time, genuinely take in hand the task of vegetable production and marketing contracts.

Nantong Municipality's general promotion of vegetable production and marketing systems have put vegetable production and marketing work on the path of national planning and have promoted vegetable production and supply. At the present time, throughout the municipality, all vegetable production teams are in the process of further strengthening care of vegetables in the field and are devoting attention to preparations for spring farming and production, striving to make vegetable supply during the spring period of shortage better than in former years.

Formerly, because of insufficient clarity about economic responsibilities in vegetable production and supply, Nantong Municipality's farming and business sectors wrangled with each other, with the result that planting plans were difficult to implement; phasing of supplies sent to market was difficult to achieve; improvement in vegetable quality was difficult; it was difficult to determine price according to quality, and the masses' displeasure was considerable. In view of the aforesaid problems, Nantong Municipality proceeded from success in the operation of pilot projects, beginning in October 1981 to organize the municipality's 174 vegetable production teams and the urban area's four vegetable procurement stations for all-around implementation of production and marketing contract systems. Contract provisions took simultaneous account of the interests of the state, the collective and individuals, and embodied the principles of equality and mutual benefit and compensation at equal value for both producers and marketers. Emphasis centered on planned planting, phased market deliveries, vegetable quality, and stable prices, responsibility for these four matters being placed on both producers and marketers in the institution of a contract system of rewards and penalties that linked vegetables, money and grain. Following certification by municipal industrial and commercial administrative and management units, they were put into effect.

More than four months of experience has shown that practice of a contract system of rewards and penalties for vegetable production in which awards and penalties, rewards and punishments are clearly set has aroused the enthusiasm of both producers and marketers. Specific benefits are manifested in the following three regards.

First, it has promoted planned planting and planted deliveries to markets. Contracts clearly stipulate that if vegetable teams do not plant according to plan, they may not dispose of any excess portions planted as they see fit, and they will not enjoy a premium price for deliveries to market or a premium price for quality that vegetable companies may pay at the time of procurement in accordance with prevailing market prices. For reduced planting or unplanted portions, they will be fined 10 percent of the per mu output value of similar varieties sent to market. If vegetable stations fail to discuss planting plans with vegetable brigades and put them into effect on time, thereby causing delays in the farming season, or if vegetable stations demand changes in plantings after vegetable production teams have planted according to plan, vegetable stations will be liable to indemnify vegetable brigades according to the actual losses they have sustained. This method maintained the solemnity of planting plans. In addition, a method of dovetailing production with planned deliveries to market was formulated. All vegetable teams delivering vegetables to markets for sale according to plan received bonuses. Reduced deliveries or failure to deliver resulted in commensurate forfeiture of grain and money as punishment, thereby effectively guaranteeing planned planting and phased market deliveries. Many vegetable teams took scales into the fields and weighed vegetables before sending them to market so that vegetables offered for sale were neither too many nor too few. They have surmounted a situation on vegetable farms of sometimes too much and sometimes too few vegetables, and the rotting of vegetables when there have been too many or a shortage of supply when there have been too few. Now an average 9.6 liang of

vegetables per capita are supplied daily to the city. This plus the amount sent to markets in the country fair trade substantially satisfies the needs of the masses.

Second was improvement in vegetable quality. According to the terms of contracts, vegetables delivered to market that meet first and second grade standards earned a premium price from the company. If these standards were not met, not only was no premium price paid, but a fine was levied. As a result, vegetable team quality concepts were intensified. After some vegetable teams sent vegetables to market that did not meet grade requirements, they did more work in the markets to straighten matters out. More than 96 percent of the vegetables sent to market between October and December 1981 were of first or second grade, and this was vastly higher than contract requirements stipulated.

Third was improvement in relations between agriculture and business. Formerly arguments between the agricultural and the business sector occurred about prices. Vegetable stations felt that vegetable teams made deliveries to market with an eye on prevailing market prices, and vegetable teams accused vegetable stations of setting prices on the basis of the market situation. In view of these circumstances, contracts emphasized the honoring of price policies. No matter whether during seasons of shortage or abundance, agreement about price had to be done on the basis of quality. In case of conflicts, discussions should be held to find a solution. If discussions did not succeed, higher authority or units concerned would be asked to set a price. In cases where quarrels resulted in delays or caused vegetable losses, the party at fault would bear responsibility. Any willful downgrading of quality in order to beat down prices, or inflating quality to raise prices would also result in fines. Thus, both the agricultural and the business sector had rules to go by and agreements to rely on. In cases of conflict, means existed to solve them, and if contracts were violated, blame could be fixed, thereby avoiding mutual arguments and mutual recriminations.

9432

CSO: 4007/334

JIANGSU

BRIEFS

HOG RAISING--Counties and communes in Jiangsu's Xuzhou Prefecture have developed hog raising in an effort to diversify the economy. The number of hogs in stock as of the end of March was 50,000 head more than the same time last year. [OW171227 Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 14 May 82 OW]

CSO: 4007/416

JIANGXI

BRIEFS

JIUJIANG PREFECTURE COTTON--Jiujiang Prefecture, Jiangxi Province, has planted over 600,000 mu of cottonfields as of now, or 94 percent of the prefecture's total cotton acreage. [Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 18 May 82 OW]

JIANGXI COUNTY RAPESEED--Jiangxi Province's Pengze, Hukou, Guangfeng and Yongxiu counties have reaped a bumper harvest of rapeseed this year. With a total output of 10 million jin, Pengze County boasts the highest growth in production. [OW191459 Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 18 May 82 OW]

CSO: 4007/416

JILIN

BRIEFS

FIELD CROP SOWING--Our province's field crop sowing has basically been completed. As of 5 May, 40.68 million mu of field crops had been sown, 85 percent of the annual sowing plan. The quality of sowing has improved this year. [SK060900 Changchun Jilin Provincial Service in Mandarin 2200 GMT 5 May 82 SK]

PADDY RICE CULTIVATION--The transplanting of paddy rice seedlings in Jilin Municipality has begun. Thanks to the peasants' efforts in selecting good quality seeds, the growing situation of 100,000 mu of paddy rice seedlings in this municipality is better than in the previous year. This year Jilin Municipality has used 224 sets of mechanized transplanters, planning to transplant 220,000 mu of paddy rice seedlings, two-thirds of the farming acreage of the province's experimental fields. [Changchun Jilin Provincial Service in Mandarin 1100 GMT 16 May 82 SK]

CSO: 4007/416

BRIEFS

AFFORESTATION PROJECTS--An upsurge in afforestation is being whipped up in Nei Monggol Autonomous Region. By mid-April, the region had afforested 1,767,000 mu, fulfilling 35.3 percent of the annual afforestation plan. Some 25.6 million trees had been planted by houses, villages, roads and waterways, fulfilling 36 percent of the annual plan. [Hohhot Nei Monggol Regional Service in Mandarin 2200 GMT 25 Apr 82 SK]

SPRING AFFORESTATION--Xilin Gol League, Nei Monggol Autonomous Region, has scored qualitative and quantitative achievements in planting trees this spring. By the end of April, the league had planted over 65,800 mu of trees and over 1.24 million trees around houses and villages and along the roads and waterways, as well as in the people's voluntary operations. It grew over 19,500 mu of saplings. [SK120657 Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 10 May 82 SK]

CSO: 4007/416

NINGXIA

AFFORESTATION AIDS DESERT CONTROL

OW130306 Beijing XINHUA in English 0255 GMT 13 May 82

[Text] Yinchuan, 13 May (XINHUA)--Afforestation in Zhongwei County, Ningxia Hui Autonomous region, has forced the Tengger Desert to retreat 10 kilometers northward in the past 33 years.

The county which is on the southeastern edge of the desert has always been plagued by sandstorms. Records show that for the past 400 years from the Ming Dynasty up to the founding of New China the desert advanced southward at a rate of 5 meters a year. Dust storms swallowed up farmland and levelled villages.

The local government has mobilized the people to take part in afforestation campaigns every year since 1949. They also built crisscross fences made of dry wheat stalks to anchor the sand dunes and conducted water from the Yellow River to irrigate the sandy soil. After almost 33 years of hard work, a shelter belt 60 kilometers long covering 6,300 hectares has been formed. Trees planted along roadsides, ditches and around houses number 9,380,000. The state has allocated special funds annually for the project and scientific research units have sent groups to the county to help the local people plan the desert control work.

Zhongwei County now has 26,000 hectares of cultivated land, more than double that of 1949. Total grain output last year was 101,400 tons, five times what it was in the early years of New China.

CSO: 4020/130

QINGHAI

BRIEFS

SNOWFALL REPORT--From the evening of 10 to 12 May, most areas of Qinghai Province had moderate rainfall followed by moderate snowfall. A few areas of the province had heavy snowfall. Wulan and Huzhu counties had the most precipitation, averaging 19 millimeters. Some areas had less than 10 millimeters. According to the weather forecast, Qinghai Province will have clear skies beginning 13 or 14 May. Haibei and Haidong prefectures will have frost. Huangnan, Hainan and Golog prefectures will have ice conditions. [SK140950 Xining Qinghai Provincial Service in Mandarin 1100 GMT 13 May 82 SK]

CSO: 4007/416

BRIEFS

MUPING COUNTY SPRING FARMING--Spring farming is being carried out speedily and in good measure in Muping County, Shandong Province. The county has irrigated 150,000 mu of wheatfields, plowed and leveled 230,000 mu of fields and begun construction of 351 irrigation projects. Ninety-seven percent of the county's brigades have instituted the responsibility system of setting payment according to output. Many people have been able to engage in diversified production. The income from the diversified economy from January to March was 15.4 million yuan, 33 percent more than in the corresponding 1981 period. [SK292229 Jinan Shandong Provincial Service in Mandarin 2300 GMT 27 Apr 82 SK]

CADRES COMBAT DROUGHT--Over 10,000 cadres in Weifang Prefecture have gone to the forefront to help combat drought. So far this prefecture has watered 4.84 million mu of wheat and sown 5.13 million mu of spring crops, which accounts for 79 percent of spring sowing acreage. The sowing of field crops, except for sweet potatoes and peanuts, has basically been completed. According to statistics, this prefecture has carried out 10,500 water conservancy projects and completed 8,300 of them, sunk 7,670 machine-operated wells and 131,400 indigenous wells and expanded and improved 567,000 mu of irrigated land. [SK120824 Jinan Shandong Provincial Service in Mandarin 2300 GMT 11 May 82 SK]

RAINFALL REPORTS--Rain fell in 35 municipalities and counties in Shandong Province on 10 May. In the early morning of 11 May, rainfall measuring 10-31 millimeters in nine counties and cities including Huimin, Zouping, Hauntai, Qingyun, Weifang, Anqiu, Qixia, Zhaoyuan and Beizhen, and below 10 millimeters in the remaining 26 counties and cities was recorded. Spring field crops are being sown on a crash basis in these localities. [Jinan Shandong Provincial Service in Mandarin 2300 GMT 11 May 82 SK]

CSO: 4007/416

QUOTAS FOR GRAIN PURCHASE, SALE, ALLOCATION REVIEWED

Circular Issued

Taiyuan SHANXI RIBAO in Chinese 26 Feb 82 p 1

[Article: "Provincial People's Government Circular on Quotas for Purchase, Marketing and Transfer of Grain This Year"]

[Text] The provincial people's government recently issued a circular requesting people's governments at all levels to adopt quotas for the purchase, marketing and transfer of grain starting in 1982. Quotas once fixed will remain unchanged for 3 years.

The circular specifies the following:

1. Appropriate to different forms of rural responsibility in production, localities should see to it that the purchase quotas are fixed for all contracting units including production teams, labor groups and households. Contracts should be signed for this and the quotas should remain unchanged for 3 years. In-depth investigation should be made to ensure that the quota burden is equitably distributed. Quotas for the purchase of surplus grain should be based on the ability to provide commodity grain and must not be distributed equally. Contracting units may sell their surpluses at higher prices only after they have fulfilled their base purchase quotas.
2. Grain marketing quotas which the province allocates to various lower units do not include grain used for fostering production and rewarding cottongrowers. Grain marketing quotas cover the following: food grain for fixed population, supplies to staple- and nonstaple food industries, supplies to the brewery industry, grain for use by public services and industrial enterprises, animal feed, grain for fattening pigs, grain to sell back to the countryside, grain as reward for the sale of farm and sidelines products, grain for making up seed supplies, and grain as subsidies for public project laborers. With the adoption of the rural responsibility system in production and the liberalization of rural economic policies, grain-short teams should be able to find their own sources of grain supplies to make up their shortfalls and should no longer be supplied by the state in normal years. Teams and households that are really in need of grain can borrow grain from the state and return it the following year. Grain shall be borrowed and returned at the same price as

grain purchased by the state. Vegetable, fruit and cash-crop growers who have fulfilled the state plan but are short of food grain shall be supplied with grain in amounts either according to existing provisions or according to fixed marketing quotas which will remain unchanged for 3 years.

3. Localities should give an overall consideration to quotas for the purchase and marketing of grain. They should consider local conditions, arrive at reasonable quotas amount of grain to be purchased and marketed during the year, live up the local grain economy, balance a good crop year with a bad crop year, make up the deficit of a bad year with the surplus of a good year. They may purchase more grain in a good year and less grain in a bad year. They must adhere strictly to the difference between the amount purchased and the amount marketed as specified for them by the province. Localities required to export grain must not reduce their export; localities that import grain must not increase their import. Provided the difference is observed between the amounts transferred in and out, localities may make mutual adjustments to their grain purchase and marketing quotas. When they need to market more grain they must purchase more. When they are sure they will market less grain they may purchase less. A settlement of account should be made once every 3 years. Localities that have purchased more than they have marketed may retain the surplus for use in lean years. Localities that are short of grain due to natural disasters or other causes must find additional supplies themselves. Grain borrowed from the province in a year of severe calamities must be returned later.

4. To meet the needs of a developing national economy, the needs of the armed forces and the cities and the needs of the market, quotas for the transfer of soybeans, millet, assorted beans and sorghum should be increased. The types of such grains and their amounts shall be specified every year by negotiation between the grain administrations and localities. Wheat transferred out of a locality for use as a reward to cottongrowers of another locality can count as wheat transferred by the contributing locality to a higher unit, but shall not count as part of the regular wheat transferred into the recipient locality. When localities have fulfilled their quotas for transfer to the higher units, any surplus or deficit against the purchase and marketing quotas will be balanced by the province.

5. With the introduction of quotas for grain, the general principles, policies and regulations on grain should continue to be observed. Localities should not under their own authority make changes to the following: the range of price increases for the purchase of surplus products, the state and provincial policy regarding the award of grain for the sale of farm and sideline products, the transfer of rural inhabitants to urban areas, the amounts of grain to be supplied to people in cities and towns, and the regulations on the management of grain prices. With the exception of the grain which localities can market at negotiated prices, all grain stored in prefectural and city granaries is only at the disposal of the state, and must not be touched without the approval of the provincial authorities.

6. End of March grain inventories at localities to be used against outstanding national and provincial grain coupons shall be treated temporarily as revolving stocks of the prefectures and cities (a reasonable level of their

stocks will be determined later). Starting from 1 April 1982, grain coupons will count as grain transfers and will be settled together with grain transfers. Drawing on grain coupons will be like transferring in grain, delivering grain coupons to a higher level will be like transferring out grain.

7. The 50-50 ratio provided by the province for grain sold at negotiated prices will remain unchanged. Localities should promote the purchase and sale of grain at negotiated prices, balance surpluses and deficits, liven up the market, keep grain prices down, and treat the purchase of negotiated-price grain as a supplementary source of grain for the state.

8. Base purchase quotas for localities as approved by the State Council must not be changed without the approval of the State Council. Starting from 1982, the percentage of the base purchase quotas to be fulfilled by localities should be fixed on the basis of the actual fulfillment by localities in the past 2 years. Specific methods of arriving at the percentages shall be announced by the grain administrations.

The circular points out that the quotas for the purchase, marketing and transfer of grain represent a major reform of the system of grain management. It involves many policies and touches many sectors of society. It affects directly the development of grain production and the livelihood of the people in town and in the countryside. The people's governments at all levels must give the matter full attention and use their best efforts to carry out the reform.

Commentary on Monopoly

Taiyuan SHANXI RIBAO in Chinese 26 Feb 82 p 1

[Commentary: "With Planning as the Mainstay, Carry Out State Purchase and Marketing of Grain"]

[Text] The use of fixed quotas for the purchase, marketing and transfer of grain by the state is a major reform in the country's management of grain. It is beneficial for the continued stabilization of the peasants' burdens and the growth of farm production. Within the framework of a balanced supply and demand of grain a rational readjustment of the geographical pattern of farm crops brings greater initiatives from the central authorities, the localities and the grain administrations. All localities must take earnest steps to carry out this reform.

Fixed quotas for the purchase, marketing and transfer of grain by the state must be based on economic planning supplemented by market readjustment. The principle of planned purchase and marketing must be adhered to. We must give things overall consideration and make arrangements for everything involved, handling in a correct way the relationship between the state, the collective and the individual. We must do our best to narrow the gap between grain receipts and outlays. We must not pay attention only to small things and lose sight of bigger things, pay attention to individual interests and lose sight of the interests of the whole country. In fixing the quotas for the purchase, marketing and transfer of grain, some localities wish only that they could sell

less grain to the state, retain more and sell less of the better varieties, buy more and better varieties from the state, and sell at a higher price to make the peasants happy. Some localities, because they have contributed less grain to the state due to natural disasters in the past 2 years, want to have lower quotas; they fail to see, from a developmental point of view, what productive enthusiasm has been aroused from the masses since the introduction of the rural res system of production. A few comrades wish their localities could have more flexibility by selling less to the state and selling more to the consumers. All this means that the relationship between the state, the collective and the individual has not been treated properly, and local interests have been stressed at the expense of the interests of the country as a whole.

Are there really difficulties in fulfilling the quotas? We believe that in our province the difficulties, although they exist, are not too great. Since the introduction of the rural responsibility system in production, farm produce has increased substantially, and the percentage of purchase quotas has declined a great deal during the last few years. For example, the percentage of purchased wheat has dropped from about 25 percent to around 13 percent in recent years. In 1981, 16 million jin of soybeans were purchased in the province at the fixed price, or 39.8 percent of the purchase target, but 34 million jin were purchased at negotiated prices. Six million jin of asserted beans were purchased at the fixed price, or 35 percent of the purchase target, but 35 million jin were purchased at negotiated prices. It is not that it was impossible to fulfill the purchase quotas but certain people wanted to sell at higher prices. On this question of fixing quotas for the purchase of grain we must educate the peasants and make them see that the state has done its utmost over the past 3 years to take care of their interests and that they should on their part take the interest of the whole country into consideration by fulfilling the grain purchase quotas to support the cities, the industries and national construction.

Doing a good job of grain distribution and livening up the grain economy on the basis of planned purchase and marketing by the state--this is an important task for the grain administrations and an honorable duty for party committees and people's governments at various levels. To assure fulfillment of the quotas for the purchase of grain and surplus grain, production teams, labor groups and households should all have fixed quotas. When they have fulfilled them, they may dispose of their surplus grain as they see fit. The state can negotiate with the teams and peasants for purchasing the surplus grain at negotiated prices. In localities where it is feasible, fine grains and industrial products can be used to exchange with the teams and peasants for grain. This will supplement the state's quota purchases in meeting the basic grain needs of various sectors.

Setting quotas for the purchase, marketing and transfer of grain is new work. The leadership at various levels must take it in their own hands, strengthen public information, conduct in-depth investigations of conditions in the communes and brigades, and do their best to arrive at a fair distribution of quotas. Grain administrations under the leadership of the governments at various levels should pay full attention to the fixing of quotas this year. All localities in the province must complete the fixing of quotas for all contracting units before the "Grain Rain" season.

PROVINCIAL LEADERS INSPECT KEY UNITS

HK140613 Taiyuan SHANXI RIBAO in Chinese 6 May 82 p 1

[Report: "Provincial CCP Committee, Government Leading Comrades Go Down to Key Enterprises To Solve Problems on the Spot, Promote the Development of Production"]

[Text] Recently, Wang Kewen, secretary of the provincial CCP committee, and Wang Xi, vice governor, led responsible members of the economic committee, the planning committee, and responsible members of the industrial and communications, and financial and commercial departments and bureaus, to the Taiyuan Steel Works and 14 other large and medium-sized factories and mines. There they held discussions with comrades of the enterprises and solved 59 urgent practical problems, thus promoting the development of current industrial production.

The total industrial output value of these 15 factories and mines accounts for a very great percentage of the total industrial output value of the Taiyuan area. Most of them fulfilled or overfulfilled their production quotas of the first quarter of this year. In the second quarter, they all have encountered some problems which are relatively difficult to solve. Some of these problems involve the relationships with the commercial, supply and transportation departments. Delay in solving these problems due to disputes over trifles or red tape could possibly affect the increase of economic returns. After responsible members of departments concerned, headed by leading comrades of the provincial CCP committee and provincial government, arrived at these enterprises, they adopted the method of "joint examination by responsible members at three levels and making on-the-spot decisions." This strengthened economic coordination and some problems which had remained unsolved for a long time were readily solved. In the Xishan Mining Bureau, for example, production was affected due to overstocking of coal. After the arrival of responsible comrades of the provincial government, a "joint examination" by responsible members including those of the provincial economic committee and the Taiyuan Railway Bureau was held on the spot. It was finally decided that the Taiyuan Railway Bureau should make sure that 550 railway cars would be provided every day. The problem of gasoline for some 100 trucks was also solved. This not only ensured that all the coal to be produced this year would be transported to other places

but a portion of the overstocked coal would also be transported. The problem of overstocking of coal was thus basically solved. Besides, they also handled official business on the spot and helped the Shanxi Textile Printing and Dyeing Mill, the Taiyuan Pharmaceutical Plant, the Taiyuan Chemical Fertilizer Plant and the Taiyuan Chemical Works solve problems of raw material supplies of 50 tons of caustic soda, 16,000 tons of coke, 14 tons of diesel oil and 10 tons of acetone.

As a result of responsible members of departments concerned, headed by responsible comrades of the provincial CCP committee and the provincial government, handling official business on the spot, the relationships between industry and commerce and between industry and supply were coordinated. Due to changes in market, high and medium-grade cigarettes produced by the Taiyuan Cigarette Plant sold slowly this year. The plant formerly planned to increase its production but commercial departments only purchased them in small quantity. After learning what had happened, leading comrades of the provincial CCP committee and the provincial government discussed with responsible members of the plant and asked them to produce easily marketable cigarettes in accordance with the needs of market. At the same time, they discussed with the commercial departments and decided that the commercial departments should purchase 90 percent of the cigarettes produced by the Taiyuan Cigarette Plant and the remaining 10 percent is to be sold by the plant itself. The varieties and grades of these cigarettes were to be fixed at proper proportions. Thus, a long-standing problem was solved. The provincial supplies bureau was in bad need of 5,000 tons of thin iron sheets and was not able to get them. While responsible members of this bureau were handling official business on the spot at the Taiyuan Steel Works, they were helped by leading comrades of the provincial CCP committee and the provincial government who acted as go-betweens in solving this problem. At last, the Taiyuan Steel Works voluntarily decided to produce the iron sheets in order to meet this demand of the provincial supplies bureau, although not much profit would be obtained from producing them.

While leading comrades of the provincial CCP committee and the provincial government were handling official affairs on the spot, they were not able to solve at once 23 problems put forth by the enterprises but they noted them all down, arranged them in proper order on a list, made clear which departments should be responsible for solving them and instructed these departments to solve them within a specified time.

CSO: 4007/416

ZHEJIANG

PROVINCIAL DIRECTIVE ON SPRING FARMING ISSUED

Hangzhou ZHEJIANG RIBAO in Chinese 14 Mar 82 p 1

[Article: "Zhejiang Provincial CCP Committee and Zhejiang Provincial People's Government Directive on Doing a Conscientious Job of Spring Farming and Production"]

[Text] The busy season of spring farming will soon be here, and in order that no time will be lost in doing a good job of spring farming for an all-around bumper harvest from agriculture this year, the following directive has been issued:

1. All Levels of the CCP Committee and Government Should Attach Extreme Importance to Strengthening Leadership of Spring Farming and Production

Since the 3rd Plenary Session of the 11th Party Central Committee, heartening changes have taken place in the province's rural economy, and the situation has developed in an encouraging way. However, it should be realized that numerous problems still exist in the province's agricultural work. During the past few years, grain, cotton, hog and vegetable production has not been very ideal as a result of both natural disasters and problems with leadership. From the province to the prefectures and the counties, there has been a laxness in leadership. Cadres in some leadership organizations have gone into rural villages less, and in some communes and brigades grassroots cadres have not devoted great attention to agriculture. A look at the present situation shows that the energies of leaders in numerous places have yet to be concentrated on spring farming and production. Unless this situation is rapidly changed, the good situation in agriculture that has appeared will be hard to maintain and develop. Leaders at all levels must deeply realize the importance and urgency of the development of agriculture, and be extremely determined to expend maximum effort in diligent strengthening of the leadership of agriculture.

A good job in spring farming and production is the first battle in winning a bumper harvest in agriculture for the entire year. All levels of CCP committees and government should take spring farming and production in hand as the central task of the moment in rural villages. Leaders at all levels in the province, prefectures, counties, districts and communes should change their work style, cut down on the number of meetings they hold, go down into rural villages and concentrate their energies on attention to agriculture. In the period from now until May,

leadership comrades in charge of prefectures, municipalities and counties should take the lead in going to the front lines of agriculture to investigate and study, to giving painstaking guidance, and to helping communes and brigades perfect agricultural production responsibility systems and do a solid job of spring farming and preparations for farming. In addition, all levels of leadership organizations should organize a group of cadres to go into the countryside to help the grassroots solve some real problems. Work situations following visits by leadership cadres from units in prefectural, municipal, county and provincial organizations are to be reported back to the Provincial CCP Committee and the people's government.

2. Propagandize with Great Fanfare Implementation of Central Committee Documents on Rural Work Problems, and Stabilize and Perfect Agricultural Production Responsibility Systems

The Central Committee documents on rural work problems summarize the practical experience of rural work during the past several years. They are a powerful weapon for continuing and developing a series of rural programs and policies since the 3rd Plenary Session of the 11th Party Central Committee, and for unifying cadre and mass thinking about production responsibility systems. The most fundamental need in strengthening leadership of agriculture and doing a good job of spring farming and farming preparation work is good propagandization and good implementation of the Central Committee documents on rural work problems.

Right after the lunar new year, many county and municipal communes used the Central Committee documents on rural work problems as basic teaching materials in combination with local realities for the training of brigade and production team cadres, which unified cadre perceptions of the situation, improved their consciousness about carrying out the programs and policies that have ensued from the 3rd Plenary Session of the 11th Party Central Committee, clarified the guiding mentality for institution of production responsibility systems and development of agriculture, clarified grassroots cadre responsibilities following establishment of responsibility systems, and encouraged a spirit of dare to do and dare to care, which have won very good results. However, a certain number of counties and communes have not aroused serious attention to these tasks and have not conscientiously taken them in hand. They must take them firmly in hand to remedy the situation. In addition, places without production team heads and those that have not instituted cadre remuneration should quickly elect production team heads and institute equitable remuneration for cadres.

All kinds of propaganda tools should be applied and all forms of propaganda adopted for the propagandization with great fanfare of the Central Committee documents on rural work problems so that the farflung cadres and masses will understand that China's agriculture must hue to the road of socialist collectivization, that ownership of the means of production, such as land, will not change for a long period of time, and that the collective economy's establishment of production responsibility systems will also not change for a long time. It is to be clearly propagandized that the period of large-scale changes in the production responsibility system lies in the past, and that existing responsibility systems, no matter their form, so long as most of the people are satisfied with them and they advance production, should be consolidated and a good job done to perfect them as a means of helping

eliminate fears on the part of some that they will be changed, and mistaken suppositions that assignment to peasant households of full responsibility for task completion is the sole form of responsibility system. It is necessary to state clearly and with full assurance that the goal in instituting responsibility systems is the consolidation and development of the collective economy rather than not wanting a collective economy. Peasant household assumption of full responsibility for task completion does not mean that dividing up the fields for independent working is to be permitted. No matter the form of responsibility system, it must adhere to both making the most of the superiority of unified collective operation and arouse the enthusiasm of individual commune members to achieve both centralized management and contracting, that which lends itself to centralized management being managed in a centralized way, and that which lends itself to contracting being contracted. Production projects requiring centralized administration and management, in particular, should be under centralized control, while production tasks that lend themselves to decentralized work by individuals should be contracted out to individual workers or households. Production tasks requiring labor cooperation should be contracted to groups. Where difficulties in production exist in farming by individual households, cooperative efforts should be organized. An unequivocal attitude must be adopted and resolute correction done in cases where collective property, public accumulations, and tracts of mountain forests, mulberry groves, tea plantations or fruit orchards have been divided up.

In perfecting responsibility systems, attention should be directed to representative examples, using experiences gained at key points to promote work in all areas, adapting general methods to local situations, and giving tailored guidance. Production teams that practice various forms of responsibility systems linked to output should sign contract agreements in advance of the very busy season of spring farming. They should particularly do a good job of perfecting systems of responsibility that fix output quotas or assign full responsibility for task completion to individual peasant households to solve the problem of need for centralized management and mutual help and cooperation in production. Production teams practicing the fixing of output quotas or assignment of full responsibility for task completion to groups of households are to solve the problem of unified coordination, and study improvements in methods for calculating remuneration within teams. Production teams practicing fixed quota work contracting should also give serious attention to ways of upgrading and improving the system. Strict attention and implementation should be given to responsibility systems for industrial sideline occupations, for mountain forests and for economic crops. In addition, policies pertaining to farming, industry and sideline occupations should be handled well.

3. Enhancement of State Plan Guidance and Guaranteeing the Grain Crop Growing Area

In developing agricultural production, the planned economy must be foremost, market regulation supplementary. Following institution of various forms of production responsibility systems, agricultural production must continue to be carried out under guidance of state plans. There can be no growing of whatever one likes. In carrying out crop planting plans, many places are now giving attention to all-around planning that takes into account concern for all, and making equitable arrangements, the grain growing area being increased over last year. However, in

many places cadre conception of state plans is weak, and a tendency toward liberalization exists in arranging crop growing areas as they take it upon themselves to pare down the grain growing area. This problem must arouse the serious attention of all levels of CCP committees and government.

It must be pointed out that ours is a province with a large population relative to available land in which the grain fields per capita average only 0.5 mu. Furthermore, population is increasing year by year, and needs for grain are steadily increasing from every quarter. During the past 2 years, reduction has occurred in the grain growing area. The people regard food as paradise, and eating is a matter of supreme importance. Unless we are ruthless about increasing grain production, development of economic diversification will be impaired; the overall national economic situation will be impaired; and even social stability may be impaired. We positively cannot have a happy-go-lucky attitude about this.

If grain production is to steadily increase, a certain growing area has to be guaranteed. The Provincial CCP Committee and the Provincial People's Government require all jurisdictions to maintain their grain growing area this year at the 1980 level, and those who have taken it upon themselves to reduce the area are to resolutely augment it. In implementing this year's agricultural production plans, they must repeatedly educate rural grassroots cadre and commune members to an all-around understanding of the program of "positively no slackening in grain production while actively developing economic diversification," concern for the situation as a whole, conscious obedience to state plans, and a guaranteed grain growing area. Furthermore, they must include these requirements in contractual agreements, and put them into effect in production teams, groups and households. Should contracting units and individuals take it upon themselves to reduce the grain growing area, all levels of the people's government should interfere administratively as required.

Commodity grain growing areas should regard even more seriously development of grain production. They should, on the basis of their own capabilities, adopt some effective economic measures to encourage production teams and commune members to grow more grain, increase grain output and provide more commodity grain to make new contributions to the country.

While giving attention to grain production, all jurisdictions should make full use of mountainlands, hills, coastal beaches and lakes for active development of economic diversification, steadily opening new fields of production.

4. Active Promotion of Agricultural Science and Technology, and Conscientious Implementation of Various Measures to Increase Output

Throughout the province, the farflung rural villages are starting a new upsurge of studying and using science. All levels of leadership should take account of this new situation and take full advantage of agricultural scientific and technical personnel at all levels, actively organize mass study of science and technology, and steadily upgrade the level of scientific farming. Right now the need is to emphasize attention to the following tasks for spring farming and production.

1. Intensification of cultivation and care of spring-flowering crops. This year's growth of spring-flowering crops has been rather poor, and there has also been a lot of rain recently requiring the digging of drainage ditches, proper fertilization, increase in prevention and control of cereal scab of wheat, barley and naked barley, in an effort to do everything possible to win a bumper harvest of spring grain.

2. Attention to spring sowing and seedling propagation. Crop patterns, the matching of crop varieties, methods of seedling propagation, and other measures for increasing yields are to be made the responsibility of teams and households. Places practicing the fixing of output or the fixing of full responsibility for task completion on individual households are to use either production team-controlled methods or voluntary association of commune members in stimulation of sprouting and planting, conscientiously fostering growth of seedlings.

3. Good use of material resources, such as fertilizer, seeds, farm implements and plow oxen. Advantage should be taken of the time before transplantation of the early rice seedlings to arouse the masses to grow grass and duckweed, to handle well policies on accumulation and contribution of fertilizer, and to increase accumulations of all kinds of miscellaneous fertilizers. There should be an all-around good job done of inspecting seeds, sunning them, selecting them and redistributing surpluses to areas of shortage. Early preparations should be made against a general shortage of seeds for the late crop. Seed production for hybrid rice should be planned in a centralized way, arrangements made and work started early. Urgent attention should also be given to farm tools, farm machines, plow oxen and material preparations of all kinds. In addition, it is necessary to buttress water conservancy project maintenance and management to assure water for use in agriculture.

All levels of leadership are to organize the strength of agricultural technology promotion units and scientific research units to zero in on the weak links in agricultural production in different areas, study ways to increase output, and help the masses solve problems in technology. The agricultural technology promotion network should be perfected, and a good job done in running commune agricultural science stations to take full advantage of their role. Various means, such as the running of technical training courses, on-site demonstrations, and making the rounds to give instruction, should be used to extend various effective measures for increasing outputs.

5. All Trades and Industries Are to Serve Agriculture, Actively Taking the Initiative to Assist Spring Farming and Production

Building of a solid agricultural foundation requires mobilization of forces everywhere to assist agriculture. Trades and industries may not regard service to agriculture as an added burden, but should regard it as a matter in which they have a stake. In giving help to agriculture, they should not consider only their own profits and losses and their own gain, but should be concerned about the concerns of agriculture, and think the thoughts of agriculture. Whatever agriculture

urgently requires should be done whether or not there is any profit to be made. Even if losses ensue, it should be done; one cannot do only things that make money.

In order to support spring farming and production before it is too late, agricultural, industrial, scientific and technical, planning, materials, commercial, supply and marketing, transportation, and banking units should act on the basis of the new situation following establishment in rural villages of production responsibility system to formulate plans to help spring farming and production. They should prepare for and carry out promptly solutions to problems such as supply of materials, technical guidance, farm machinery maintenance and repair, providing energy, and issuance of farm credit to make a contribution to support of agricultural production.

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CSO: 4007/342

Machinery

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TITLE: "Research on Axial-flow Threshing Cylinder"

SOURCE: Beijing NONGYE JIXIE XUEBAO [TRANSLATIONS OF THE CHINESE SOCIETY OF AGRICULTURAL MACHINERY] in Chinese No 1, 1982 pp 55-72

TEXT OF ENGLISH ABSTRACT: In 1978 we built a large testing bed for axial-flow threshing cylinders, which were changeable for three types of cylinders, four concave types and five types of cylinder covers. Comparative tests can be made on seven different arrangements of the above-mentioned parts. During 1979-1980, we conducted 120 tests with this bed on threshing wheat, soybeans and maize.

Our conclusions are as follows:

1. For the seven arrangements of the working parts, the feeding capacities can all reach 6 kg/sec, loss percentage less than 1 percent, broken seed percentage of soybeans 0.5 ~ 1 percent, of maize 3 percent. Among them, the arrangement of spike tooth-vane type cylinders with three-grates type concave gave the strongest separating capacity and the best adaptability of seed moisture content, but it consumed more power. The arrangement of raspbar-vane type cylinders and three-grates type concave gave the best comprehensive results, but was less adaptable with seed

[Continuation of NONGYE JIXIE XUEBAO No 1, 1982 pp 55-72]

moisture content.

2. In the tests of all arrangements, the percentage of foreign substances in the threshed products was rather high when threshing dry wheat and soybeans, less when threshing wet wheat, and minimum when threshing maize.

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END